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Occultation of 42 *Leonis, of* 3579 *B.A.C., of i Leonis, and of the Planet Mars, observed at Ashurst.* By Robert Snow, Esq.

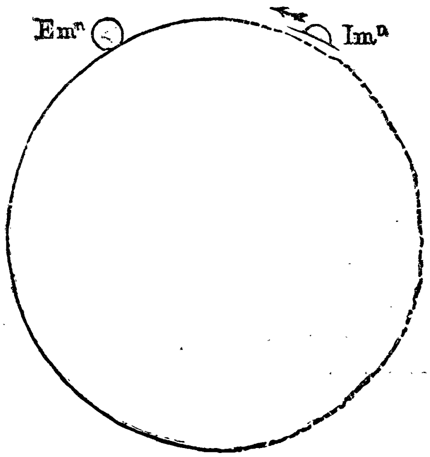
"$51^\circ\ 15'\ 58''$ N. Lat. $1^m\ 10^s$ W. Long.

"(1.) 42 *Leonis.* Immersion at $7^h\ 26^m\ 53^s{\cdot}6$, corrected sidereal time for the place. The moon being over thirteen days old, and excessively bright, gave an uncertainty to the observation, though the immersion took place at the dark limb. The emersion took place at the bright limb, but could not be observed; for the star was quite imperceptible, until it had quitted the moon's edge for some little distance. The definition of bright stars was far from good all the early part of the evening.

"(2.) 3579 B.A.C. Immersion at $11^h\ 48^m\ 34^s{\cdot}6$, corrected sidereal time. Well seen, and well observed. Again, the emersion could not be observed on account of the star being overwhelmed in the moon's splendour.

"(3.) *i Leonis* also approached the moon's edge very nearly, about the time set down in the *Nautical Almanac.*

"(4.) The planet *Mars* and the moon, agreeably to the time predicted, being now not far asunder, the telescope (a 5-foot equatoreal by Simms, of 4 inches aperture) was turned on the planet, and different magnifying powers tried; but the planet was not seen well with powers higher than 76; which, accordingly, was used in the observation. The state of the air, however, seemed to be gradually improving; for, although the planet now and then waved and fluttered, it might almost be said, like a pennon, yet again its roundness kept returning very satisfactorily. It was of almost precisely the same colour as the moon; and in the most favourable moments I could not help comparing it to a spangle on the face of the sky. When first the planet began to be hidden by the moon's dark edge, then its beautiful definition became disturbed, and I imagined that a violet light, not perceived before, was thrown from it, towards the left hand, in the direction of the little arrow drawn in the accompanying figure. However, I am inclined to attribute this appearance rather to a fatigued and nervous state of the eye, or to the caprice of our own atmosphere, than to the effects of the atmospheres (if such exist) of the moon, or the planet *Mars.* For the above confused impressions only lasted for a few seconds; and when the planet was rather more than half hidden, its previous distinct sphericity seemed to return; and whilst it was slowly and solemnly vanishing, it gave for several seconds the notion of its being the summit of a lunar mountain, but melting



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gradually away. For there were two pointed illuminated summits, standing out at the moon's ragged edge hard by; and the brightness and tint of the last fraction of the planet was precisely the same as theirs.

"The immersion began at 14^h 33^m 36^s corrected sidereal time, and, as stated above, was not observed to a certainty. The planet was half hidden at 14^h 33^m 56^s·6, corrected sidereal time, and was quite hidden, and well seen to the last speck, at 14^h 34^m 36^s·6, corrected sidereal time.

"Although the above observations give 60^s for the duration of the immersion, I should be inclined to say that perhaps 70^s would be nearer the truth.

"At the emersion, I never remember a more beautiful sight than the planet rising majestically from the moon's bright edge, without the slightest distortion from its circular form. It was now quite steady and round; and the idea of the silvery *spangle* returned stronger than before. Not the slightest perceptible change of shape took place in the planet during the time occupied in quitting the moon's bright edge. Nothing whatever was to be seen of the two bodies clinging together, as it were, by threads of light; nothing of the pear-shaped appearance often recorded as put on by planets under similar circumstances. The whole phenomenon was undisturbed, and clear and sharp as a delicate engraving.

"*Mars* began to reappear at 14^h 58^m 1^s, corrected sidereal time, at the bright limb of the moon, and just cleared it at 14^h 58^m 57^s·6, thus giving 56^s for the time occupied in the re-appearance.

"This last observation was perfectly satisfactory. From the observations of both immersion and emersion, the planet was hidden by the moon for 24^m 31^s·5. It may be added that the night was quite cloudless, and that the clock-error was very nicely determined. The clock is both visible and audible from the equatoreal, as well as from the transit instrument, which has always been found to be a great practical convenience.

"*March* 12, 1854."

Occultation of ε Geminorum.

The immersion of *ε Geminorum* took place at the moon's dark limb, at 13^h 43^m 29^s, corrected sidereal time for the place. The star did not vanish quite instantaneously, but seemed suddenly to become of half its brightness or magnitude, and in the next moment was totally gone. The emersion took place at the moon's bright limb, at 13^h 15^m 42^s, corrected sidereal time. The star rose almost with a small planetary disk, so to speak, and occupied about 5^s before it was quite detached from the limb.

Ashurst, April 4th, 1854.

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